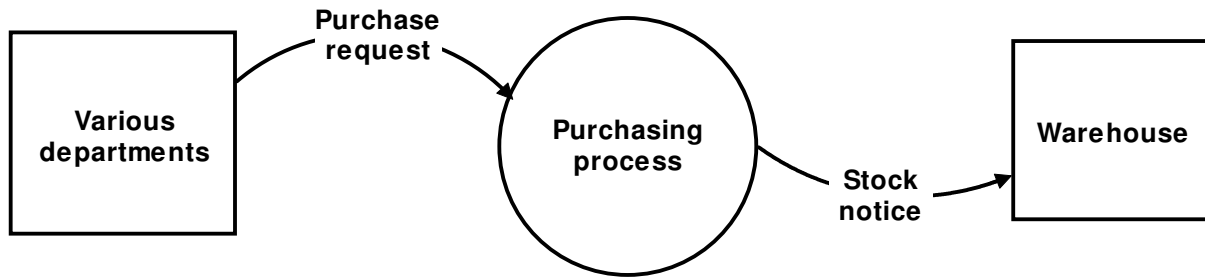


on pg. 12-4)

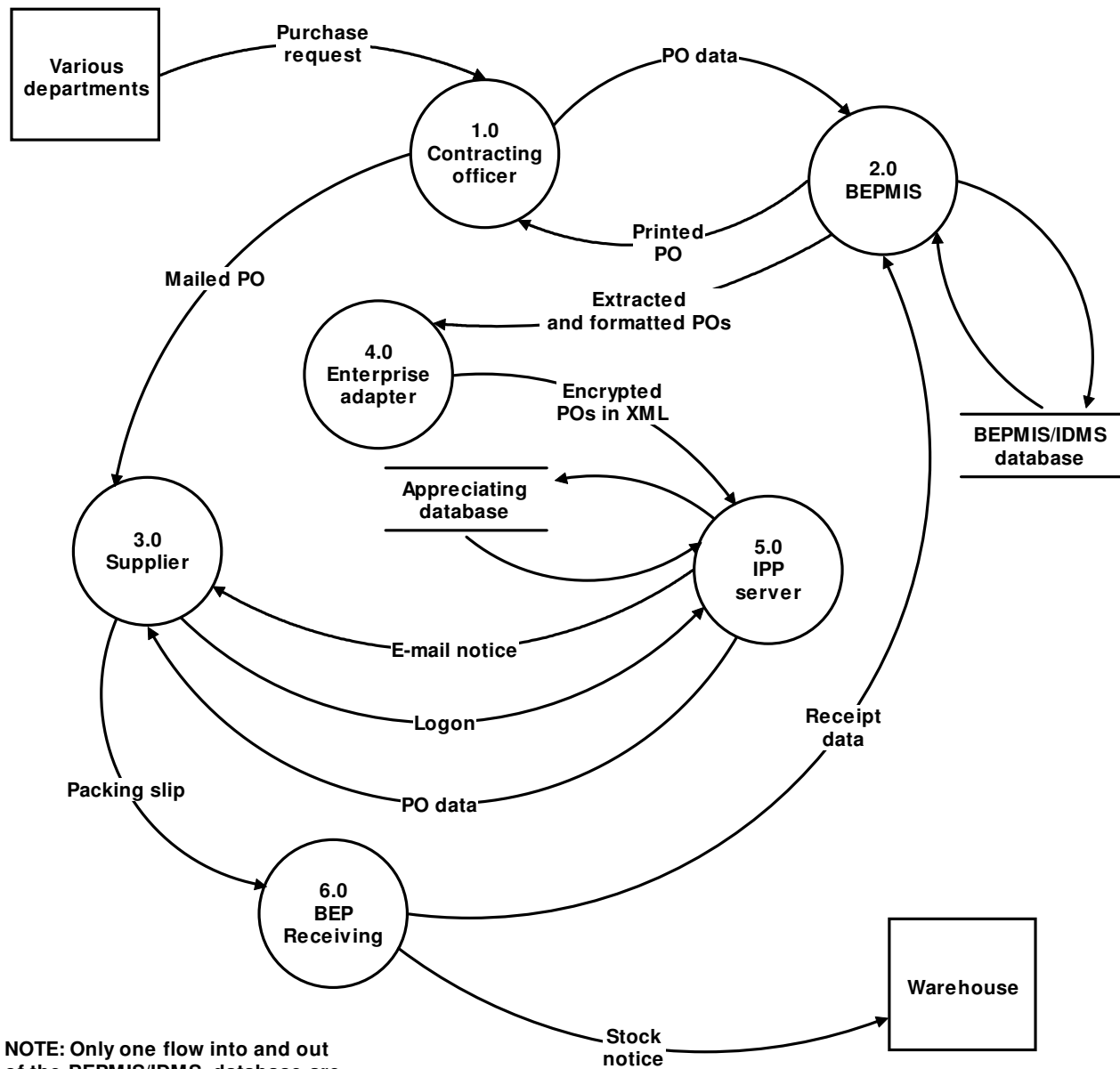
**P12-1 ANS. a. Table of Entities and Activities for Internet Payment Platform  
(Purchasing and Receiving Processes)**

Entities	Para	Activities
Contracting officer (CO)	2	1. Receive request for purchase from various departments (assumed).
		2. Enter purchase order.
Various departments		
BEPMIS	2	3. Store PO in database.
	2	4. Print PO.
CO	2	5. Sign PO.
	2	6. Mail PO to supplier.
BEPMIS	2	7. Extract and format POs.
	2	8. Send formatted POs to enterprise adapter.
Enterprise adapter	2	9. Convert PO into XML.
	2	10. Translate and encrypt POs.
	2	11. Send POs to IPP.
IPP server	2	12. Store POs on database.
	2	13. Notify supplier via e-mail.
Supplier employee	3	14. Log on to IPP and read PO.
	3	15. Decide if can respond to electronic PO (or wait for paper PO).
	3	16. Provide goods and services.
	3	17. Send goods and packing slip (assumed).
BEP Receiving department	3	18. Receive goods.
	3	19. Enter receipt data (assumed).
	3	20. Send goods to warehouse (assumed).
Warehouse		
BEPMIS	3	21. Record receipt.



**FIGURE SM-12.7** Problem 1, part b solution—context diagram for Internet Payment Platform (Purchasing and Receiving Processes)

-----Page Break-----

**FIGURE SM-12.8** Problem 1, part c solution—physical DFD for Internet Payment Platform

NOTE: Only one flow into and out of the BEPMIS/IDMS database are shown to represent all interactions.

(Purchasing and Receiving Processes)

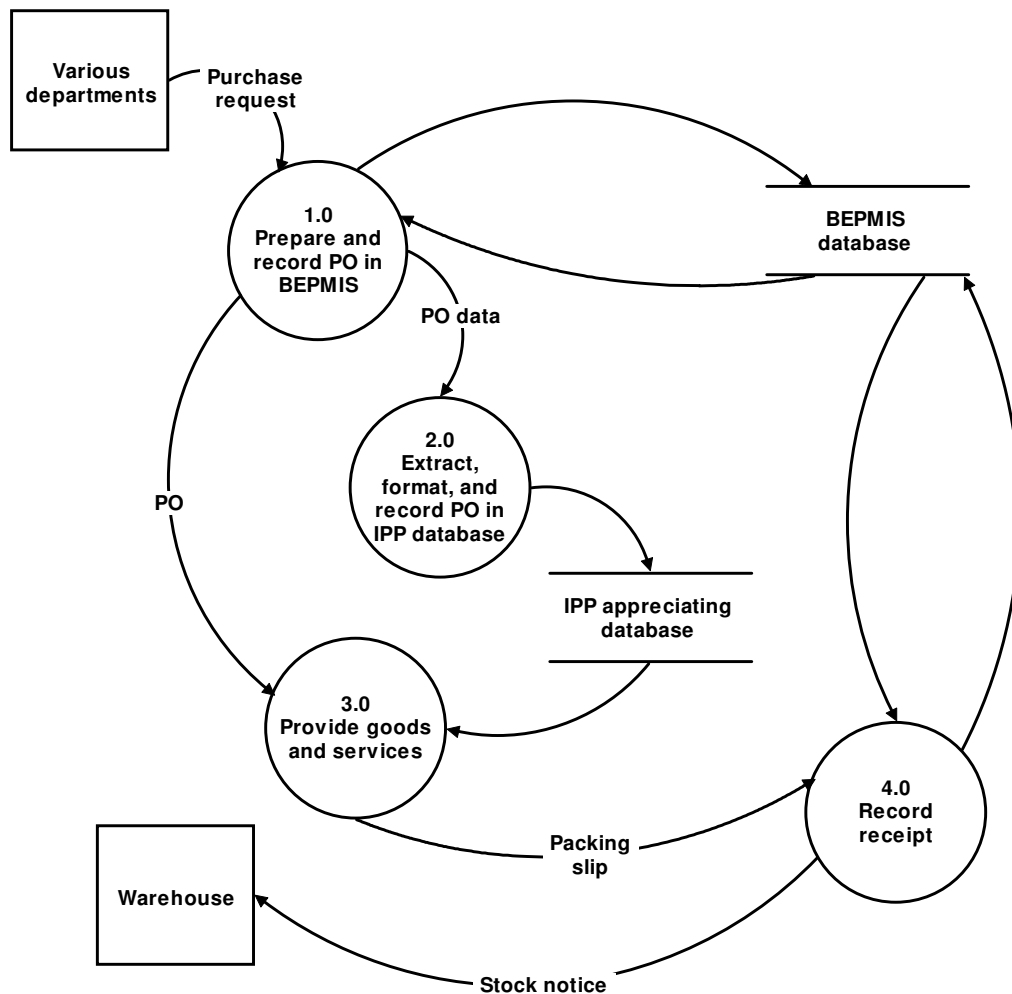
Page Break

**P12-1 ANS. d. Table of Entities and Activities (Annotated) for Internet Payment Platform (Purchasing and Receiving Processes)**

Entities	Para	Activities	Process
Contracting officer (CO)	2	2. Enter purchase order.	<i>1.0 Prepare and record PO in BEPMIS</i>
BEPMIS	2	3. Store PO in database.	

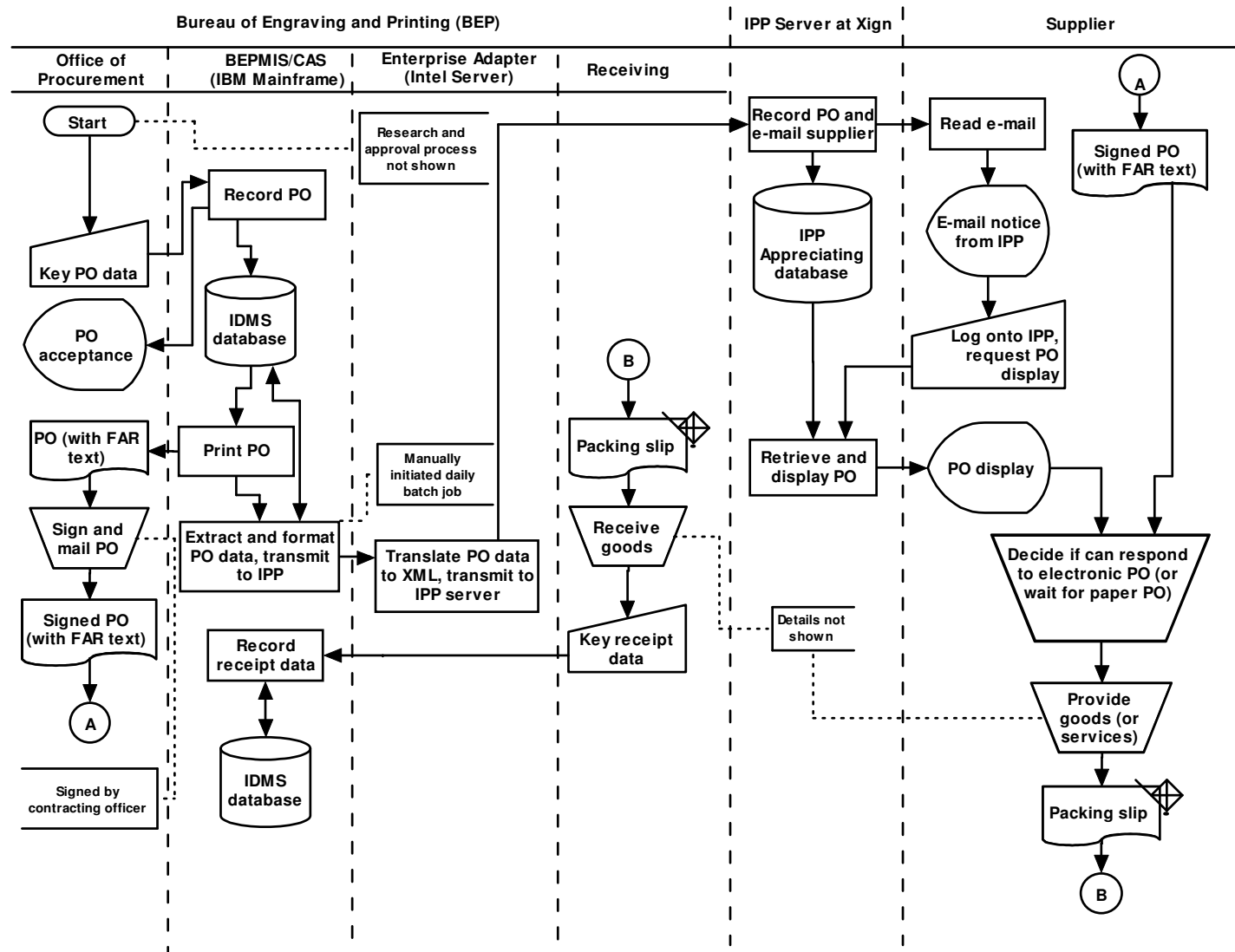
#### 4 Solutions for Chapter 12

	2	4. Print PO.	
Contracting officer	2	5. Sign PO.	
BEPMIS	2	7. Extract and format PO.	
Enterprise adapter	2	9. Convert PO into XML.	<i>2.0 Extract, format, and record PO in IPP database</i>
	2	10. Translate and encrypt PO.	
IPP server	2	12. Store POs on database.	
Supplier	3	14. Log on to IPP and read PO.	
	3	15. Decide if can respond to electronic PO (or wait for paper PO).	<i>3.0 Provide goods and services</i>
	3	16. Provide goods and services.	
BEP Receiving	3	19. Enter receipt data (assumed).	<i>4.0 Record Receipt</i>
BEPMIS	3	21. Record receipt.	



**FIGURE SM-12.9** Problem 1, part e solution—logical DFD for Internet Payment Platform (Purchasing and Receiving Processes)

.....Section Break (Next Page).....



**FIGURE SM-12.10** Problem 2, part a solution—systems flowchart for Internet Payment Platform (Purchasing and Receiving Processes)

Page Break

	Control goals of the IPP purchasing and receiving processes														
	Control Goals of the Operations Process					Control Goals of the Information Process									
	Ensure effectiveness of operations:			Ensure efficient employment of resources (people, com-puters)	Ensure security of resources (inventory, PO master data)	For purchase order inputs, ensure:			For PO master data, ensure:		For vendor packing slip inputs, ensure:			For PO master data, ensure:	
	A	B	C			IV	IC	IA	UC	UA	IV	IC	IA	UC	UA
<b>Recommended control plans</b>															
<b>Present Controls</b>															
P-1: Research and approve POs	P-1					P-1									
P-2: Print PO with FAR text			P-2			P-2									
P-3: Sign PO	P-3		P-3			P-3									
P-4: Send e-mail to supplier	P-4														
P-5: Count and inspect goods	P-5	P-5	P-5		P-5						P-5		P-5		P-5
P-6: Enter receipt data in receiving				P-6	P-6						P-6	P-6	P-6	P-6	P-6
P-7: Match PO and receipt		P-7									P-7		P-7		P-7
P-8: Monitor open POs	P-8		P-8									P-8		P-8	

Recommended control plans	Control goals of the IPP purchasing and receiving processes														
	Control Goals of the Operations Process					Control Goals of the Information Process									
	Ensure effectiveness of operations:			Ensure efficient employment of resources (people, com-puters)	Ensure security of resources (inventory, PO master data)	For purchase order inputs, ensure:			For PO master data, ensure:		For vendor packing slip inputs, ensure:			For PO master data, ensure:	
	A	B	C			IV	IC	IA	UC	UA	IV	IC	IA	UC	UA
Missing Controls															
M-1: Reconcile batch totals for extracted POs	M-1		M-1			M-1	M-1	M-1	M-1	M-1					
M-2: Programmed edits for formatted and translated PO data								M-2		M-2					
M-3: Match PO and receipt		M-3									M-3		M-3		M-3
M-4: Monitor open POs	M-4		M-4									M-4		M-4	

Possible effectiveness goals include the following:

A = Select a vendor that will provide the best quality at the lowest price by the required delivery date.

B = Ensure that the right goods in the correct amount are received in acceptable condition.

C = Comply with Federal Acquisition Regulation (FAR)

IV = input validity

IC = input completeness

IA = input accuracy

UC = update completeness

UA = update accuracy

See Exhibit SM 12.2 for a complete explanation of control plans and cell entries.

**FIGURE SM-12.11** Problem 2, part b (partial)—control matrix for Internet Payment Platform (Purchasing and Receiving Processes)



**Exhibit SM-12.2** Problem 2, part b solution (partial)—explanation of cell entries for control matrix in Figure SM-12.11

**P-1:** *Research and approve POs.*

*Effectiveness goal A:* The PO is researched by buyers, contract specialists, and contracting officers in the Office of Procurement to locate vendors who will provide the best quality at the lowest price and by the required delivery date.

*Purchase order input validity:* Approval by the contracting officer helps to ensure validity of the purchase order by reducing the possibility that invalid (unauthorized) POs will be entered into BEPMIS.

**P-2:** *Print PO with FAR text.*

*Effectiveness goal C:* POs with the required FAR text are printed and sent to the suppliers.

*Purchase requisition input validity:* POs are not valid, for purposes of FAR, unless they include the required FAR text.

**P-3:** *Sign PO.*

*Effectiveness goals A and C and purchase order input validity:* The contracting officer's signature ensures that the PO indicates approval of the chosen vendor (goal A), that the PO complies with FAR (goal C), and that only valid (authorized) POs have been entered into BEPMIS.

**P-4:** *Send e-mail to supplier.*

*Effectiveness goal A:* By sending an e-mail to the supplier to alert them that a PO has been posted to the IPP, we improve the possibility that goods (or services) will be provided in a timely manner.

**P-5:** *Count and inspect goods.*

*Effectiveness goals A, B, and C:* By counting and inspecting the goods, Receiving personnel can determine the quality of the goods (goal A), that we have received the right goods in the correct amount and in acceptable condition (goal B), and that the supplier has met the requirements of FAR specified on the PO (goal C).

*Security of resources:* By counting and inspecting goods, we ensure that receipts are correctly entered into BEPMIS, thus precluding obligating the government for inappropriate payments. Accurate inventory records can reduce inventory shrinkage and other forms of asset losses.

*Vendor packing slip input validity, input accuracy, and update accuracy:* By counting and inspecting the goods, we ensure that only actual receipts are recorded (input validity) and are recorded for the correct amounts (input

accuracy). We assume that the PO master data is updated simultaneously with the input of the receipt data.

**P-6:** *Enter receipt data in receiving.*

*Efficient employment of resources:* The direct entry of input data by receiving personnel eliminates the cost associated with the handling of the event data by additional entities.

*Vendor packing slip input validity:* Because the receipts are captured in the Receiving department, they are more likely to reflect actual product receipts.

*Vendor packing slip input completeness and update completeness:* Because the receipts are captured at the Receiving department, they are less likely to be lost as they are transported to a data entry location. We assume that the PO master data is updated simultaneously with the input of the receipt data.

*Vendor packing slip input accuracy and update accuracy:* Because Receiving personnel are familiar with the data being entered, they are less likely to make input errors and can more readily correct these errors if they occur. We assume that the PO master data is updated simultaneously with the input of the receipt data.

**P-7:** *Match PO and receipt.*

*Effectiveness goal B and vendor packing slip input validity:* By comparing the open purchase order data to received goods, we can ensure that we have received the goods that were ordered.

*Vendor packing slip input accuracy and update accuracy.* The comparison identifies erroneous or suspect data and reduces input errors. We assume that the PO master data is updated simultaneously with the input of the receipt data.

**P-8:** *Monitor open POs.*

*Effectiveness goals A and C, vendor packing slip input completeness, and vendor packing slip update completeness.* By monitoring and following up on open POs, we can ensure that goods are received in a timely manner (goal A), are in compliance with FAR (goal C), and are input in a timely manner (input completeness). We assume that the PO master data is updated simultaneously with the input of the receipt data.

**M-1:** *Reconcile batch totals for extracted POs.*

*Purchase order input validity, purchase order input completeness, purchase order input accuracy, purchase order update completeness, and purchase order update accuracy:* Agreement of the batch totals at these points would ensure that only valid POs comprising the original batch of extracted POs have been input to IPP (*input validity*), that all POs were input (*input completeness*), and that data elements appearing on the POs have been input correctly (*input accuracy*). We

assume that the PO master data is updated simultaneously with the input of the receipt data.

*Effectiveness goals A and C:* By ensuring that POs are recorded on IPP, we can ensure timely receipt of the goods in compliance with FAR.

**M-2:** *Programmed edits for formatted and translated PO data.*

*Purchase order input accuracy and purchase order update accuracy:* Edits at BEPMIS and the Enterprise Adapter would identify erroneous or suspect data and reduce input errors at the IPP server. We assume that the PO master data is updated simultaneously with the input of the receipt data.

**M-3:** *Match PO and receipt.*

*Effectiveness goal B and vendor packing slip input validity:* By comparing the open purchase order data in IPP to received goods, we could ensure that we have received the goods that were ordered.

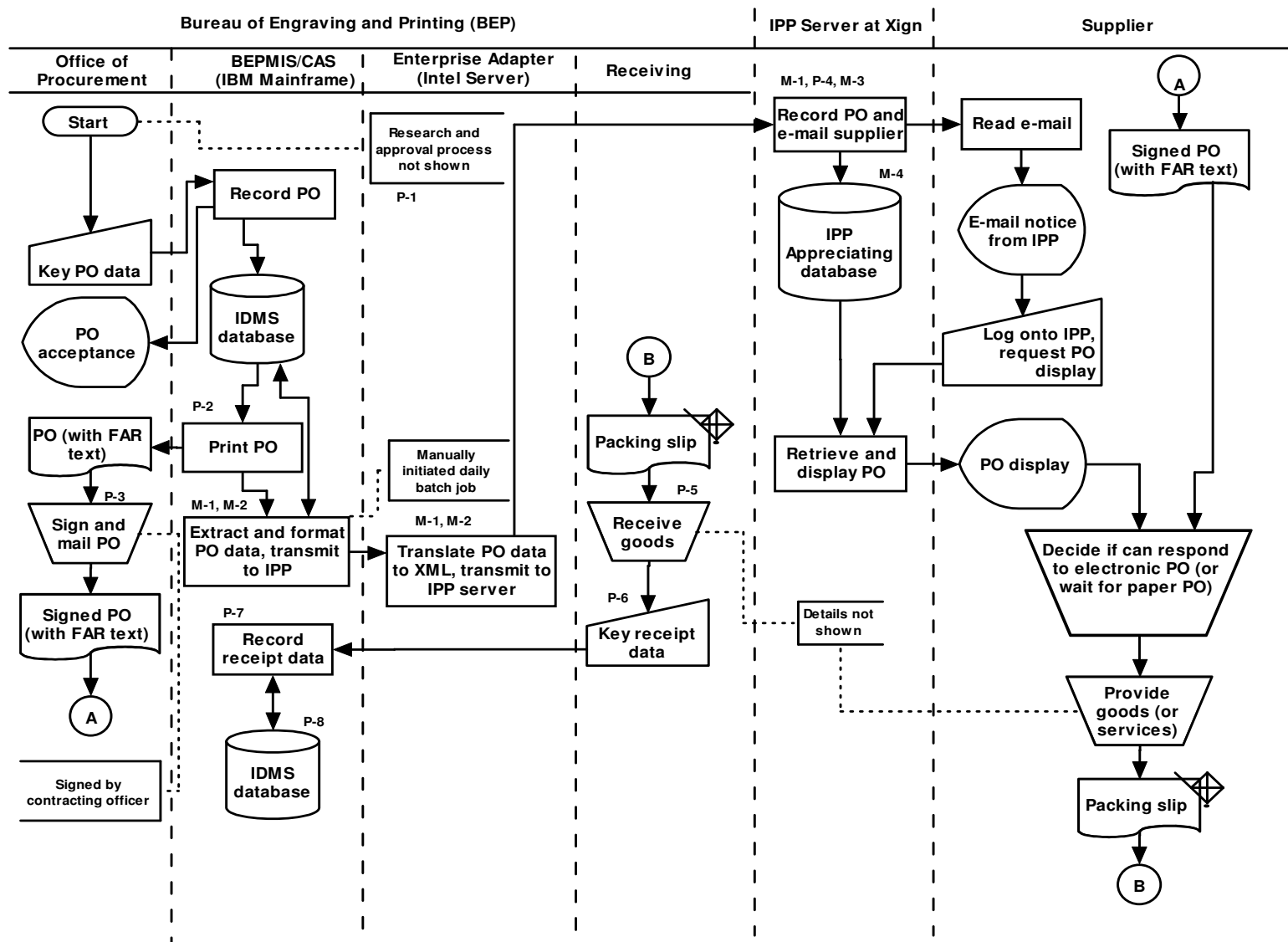
*Vendor packing slip input accuracy and update accuracy.* The comparison could identify erroneous or suspect data and reduce input errors. We assume that the PO master data is updated simultaneously with the input of the receipt data.

**M-4:** *Monitor open POs.*

*Effectiveness goals A and C, vendor packing slip input completeness, and vendor packing slip update completeness.* By monitoring and following up on open POs in IPP, we could ensure that goods are received in a timely manner (goal A), are in compliance with FAR (goal C), and are input in a timely manner (input completeness). We assume that the PO master data is updated simultaneously with the input of the receipt data.

*Solution Note:* Several controls not described in the preceding could be included in the solution to this problem, as present or missing, depending on assumptions made. For example:

- At each data entry location, we could include automated data entry, preformatted screens, online prompting, and confirm input acceptance.
- As data is entered into the system, we might find programmed edit checks, populate input screens with master data, and compare input data with master data
- When there are programmed edit checks, manual comparisons, and reconciliation of batch totals, we might find procedures for rejected inputs.
- Where paper documents are employed, we might find document design, written approvals, and turnaround documents.



**FIGURE SM-12.12** Problem 2, part c solution—annotated systems flowchart for Internet Payment Platform (Purchasing and Receiving Processes)

